Great Britain
en

Installation, user and service manual

Control panel

HMI Gas 310/610 ECO PRO

remeha the comfort innovators

Dear customer,

Thank you for purchasing this appliance.

Please read this manual carefully before using the product and keep it in a safe place for future reference.

In order to ensure continued safe and efficient operation we recommend that the product is regularly maintained. Our Service and After Sales organization can assist with this.

We hope you will receive many years of satisfactory service.

Remeha B.V.
Postbus 32
7300 AA Apeldoorn
T +31 (0)55 549 6969
I http://nl.remeha.com
E remeha@remeha.com

remeha the comfort innovators

ISO 9001

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1 Safety

1.1 General safety instructions

Adhere strictly to the specific safety instructions in this manual.

Danger of electric shock
- This equipment operates using electricity.
- Disconnect the equipment from the power supply before making electrical connections.
- Only qualified professionals are authorised to work on the appliance and the installation.
- Only the manufacturer is authorised to carry out repairs.

Warning
If the mains lead is damaged, it must be replaced by the original manufacturer, the manufacturer's dealer or another suitably skilled person to prevent hazardous situations from arising.

Danger
This appliance must not be used by people (and children) with a physical, sensory or mental disability, or by people with a lack of technical experience, unless they are supervised by someone who can assure their safety, or they have been instructed in the correct use of the appliance. Do not allow children to play with the appliance.

1.2 Recommendations

Only qualified professionals are authorised to work on the control panel and the installation.

Note
- Store this document in the document wallet on the inside of the boiler casing.
- Keep the control panel accessible at all times.

1.3 Liabilities

1.3.1 Manufacturer's liability

Our products are manufactured in compliance with the requirements of the various Directives applicable. They are therefore delivered with the CE marking and any documents necessary. In the interests of the quality of our products, we strive constantly to improve them. We therefore reserve the right to modify the specifications given in this document.

Our liability as manufacturer may not be invoked in the following cases:
- Failure to abide by the instructions on installing the appliance.
- Failure to abide by the instructions on using the appliance.
- Faulty or insufficient maintenance of the appliance.

1.3.2 Installer's liability

The installer is responsible for the installation and initial commissioning of the appliance. The installer must abide by the following instructions:
- Read and follow the instructions given in the manuals provided with the appliance.
- Install the appliance in compliance with prevailing legislation and standards.
- Carry out initial commissioning and any checks necessary.
- Explain the installation to the user.

- If maintenance is necessary, warn the user of the obligation to check the appliance and keep it in good working order.
- Give all the instruction manuals to the user.

1.3.3 User's liability

To guarantee optimum running of the installation, you must abide by the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance.
- Call on a qualified professional to carry out installation and initial commissioning.
- Get your installer to explain your installation to you.
- Have the required checks and services done by a qualified professional.
- Keep the instruction manuals in good condition close to the appliance.

2 About this manual

2.1 Additional documentation

This manual forms part of the documents pack supplied with the boiler.

2.2 Symbols used

2.2.1 Symbols used in the manual

This manual uses various danger levels to draw attention to special instructions. We do this to improve user safety, to prevent problems and to guarantee correct operation of the appliance.

Danger
Risk of dangerous situations resulting in serious personal injury.

Danger of electric shock
Risk of electric shock.

Warning
Risk of dangerous situations resulting in minor personal injury.

Caution
Risk of material damage.

Note
Please note: important information.

See
Reference to other manuals or pages in this manual.

2.3 Abbreviations

PCU	PCB for managing burner operation
SCU	Control panel PCB
SU	Safety PCB

3 Description of the product

3.1 General description

The HMI Gas 310/610 ECO PRO control panel is designed for the operation and control of the Gas 310 ECO PRO boilers.

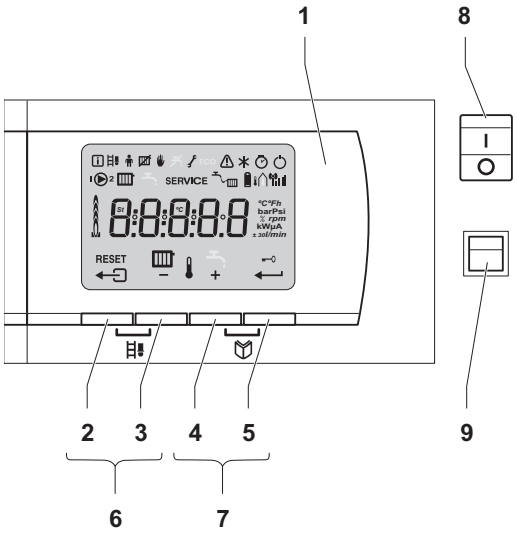
The control panel can be used to:

- Read the values measured in the heating circuit.
- Read error codes.
- Read and set boiler parameters.
- Set a chimney-sweeping position.

Note
For operation of the Gas 610 ECO PRO boiler: each module has its own control panel.

3.2 What each key means

Fig.1 Control panel



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1 Display
2 ← Escape or **RESET** key
3 CH temperature or − key
4 + key
5 ↵ Enter or Cancel key lockout
6 Chimney-sweeping keys
(Press keys **2** and **3** simultaneously.)
7 Menu keys
(Press keys **4** and **5** simultaneously.)
8 On/off switch
9 PC connection

The display has several positions and symbols and provides information about the operating status of the boiler and any faults. A maintenance message may also appear on the display. Numbers, dots and/or letters may be shown. The symbols above the function keys indicate the current function.

3.3 Meaning of the symbols on the display

Tab.1 Symbols on the display

	Information menu: Read out various current values.
	Chimney-sweeping position: Forced full or part load for O_2/CO_2 measurement.
	User menu: Parameters at user level can be changed.
	Central heating function off: The central heating function is deactivated.
	Manual mode: Boiler is set to manual mode.
	Service menu: Parameters at installer level can be changed.
	Fault: Boiler indicates a fault. This can be seen from the E code and red display.
	Frost protection: Boiler is running in frost protection mode.
	Hour counter menu: Read out the operating hours, number of successful starts and hours on mains supply.
	On/off switch: After 5 lockouts, the boiler must be switched off/on again.
	Circulating pump: The pump is running.
	CH function: Access to CH temperature parameter.
SERVICE	Yellow display with the symbols: + SERVICE + A (maintenance message).
	Water pressure: The water pressure is too low.

	Battery symbol: Status of wireless regulator battery (if connected).
	Signal strength symbol: Signal strength of the wireless regulator (if connected).
	Burner level: output level.
	Outside sensor: (Only if an outside temperature sensor is connected = accessory)
	Key lockout: Key lockout is activated.

4 Installation

4.1 Assembly of the control panel

The HMI Gas 310/610 ECO PRO control panel is installed as standard in the Gas 310 ECO PRO boiler.

Note
For installation of the control panel for Gas 610 ECO PRO boilers: each module has its own control panel.

5 Commissioning

5.1 Switching on the control panel

Note
Operating the Gas 610 ECO PRO boiler: the properties described and the instructions apply to each boiler module.

The HMI Gas 310/610 ECO PRO control panel is ready for use as soon as the power to the boiler is switched on.

1. Open the main gas tap.
2. Open the boiler gas tap.
3. Switch the power on with the boiler's on/off switch.
4. Set the components (thermostats, control) so that heat is demanded.
5. The start-up program will start and cannot be interrupted. During the start-up cycle, the display shows the following information: A short test where all segments of the display are visible:
   - F□:XX : Software version
   - P□:XX : Parameter version

   The version numbers are displayed alternately.

By pressing the ⟵ key for a short time, the current operating status is shown on the display:

Tab.2 Operating status

Heat demand	Heat demand stopped
1 : Fan on	5 : Burner stop
2 : Boiler is attempting to ignite	6 : Post-circulation of the pump
3 : CH operation	0 : Standby

In STAND-BY mode the display normally shows 0 as well as the water pressure (only when the hydraulic pressure sensor is connected) and the and symbols.

Error during start-up procedure:

- No information is shown on the display:
  - Check the mains supply voltage
  - Check the main fuses
  - Check fuses: F2 = 10 AT and F1 = 2 AT.
    Check the connection of the mains lead to the **Mains** connector in the instrument box
- An error is indicated on the display by the error symbol ⚠ and a flashing error code.
  - The meaning of the error codes can be found in the error table.
  - Press the **RESET** key for 3 seconds to restart the boiler.

For more information, see
Error codes, page 24

6 Operation

6.1 Use of the control panel

Note
For operation of the Gas 610 ECO PRO boiler: each module has its own control panel

The display is described elsewhere in this manual.

- The display content can be changed using parameter P4.
- The brightness of the display lighting can be changed using parameter P5.

Key lockout is activated by setting parameter P4 to 3. If no key is pressed for 3 minutes, the display lighting switches off and only the current water pressure, the ↵ key and the 🔒 symbol are displayed. Press the ↵ key for approximately 2 seconds to reactivate the display and the other keys. The 🔒 symbol disappears from the display.

For more information, see
What each key means, page 7
Setting the key lockout, page 16
Set brightness display, page 16

7 Settings

7.1 List of parameters

7.1.1 Parameter descriptions Gas 310 ECO PRO

Tab.3 Factory setting

Parameter	Description	Adjustment range	285	355	430	500	575	650
P1	Flow temperature: T_{SET}	20 to 90ºC	80	80	80	80	80	80
P2	Post-circulation of the pump	1 to 98 minutes 99 minutes = continuous	5	5	5	5	5	5
P3	Boiler control	0 = CH off 1 = CH on	1	1	1	1	1	1
P4	Display screen	0 = Simple 1 = Extended 2 = Automatic switching to simple after 3 minutes 3 = Automatic switching to simple after 3 minutes; key lock is active	2	2	2	2	2	2
P5	Brightness of display lighting	0 = Dimmed 1 = Bright	1	1	1	1	1	1
P17	Maximum fan speed (central heating)	G20 (H gas)	52	55	35	38	43	41
P18	Minimum fan speed	G20 (H gas)	14	15	9	10	11	10
P19	Minimum fan speed (offset(1))	G20 (H gas)	0	50	50	50	0	50
P20	Start speed(1)	G20 (H gas)	25	25	13	14	14	14
P21	Maximum flow temperature of system	0 to 90ºC	90	90	90	90	90	90
P22	Heating curve set point (maximum outside temperature)(2)	0 to 30ºC	20	20	20	20	20	20
P23	Heating curve set point (flow temperature)(2)	0 to 90ºC	20	20	20	20	20	20
P24	Heating curve set point (minimum outside temperature)(2)	-30 to 0ºC	–15	–15	–15	–15	–15	–15
P25	Frost protection temperature(2)	-30 to 20ºC	–10	–10	–10	–10	–10	–10
P26	Fault relay **X4** function(3)	0 = Operation signal 1 = Alarm signal	0	0	0	0	0	0
P27	Fault relay **X5** function(3)	0 = Operation signal 1 = Alarm signal	1	1	1	1	1	1
P28	Minimum water pressure Wps(4)	0 - 7 bar (MPa) (x 0.1 bar (Mpa)) 1 = Not connected	0	0	0	0	0	0
P29	Minimum gas pressure switch Gps (accessory)	0 = Not connected 1 = Connected	0	0	0	0	0	0
P30	Hydraulic valve HdV running time(3)	0 to 255 seconds	0	0	0	0	0	0
P31	Flue gas valve FgV running time(3)	0 to 255 seconds	0	0	0	0	0	0
P32	Release waiting time	0 to 255 seconds	0	0	0	0	0	0
P33	Gas leakage control VPS (accessory)	0 = Not connected 1 = Connected	0	0	0	0	0	0
P34	Mains detection phase	0 = Off 1 = On	1	1	1	1	1	1

Parameter	Description	Adjustment range	285	355	430	500	575	650
P35	Blocking input function	1 = Blocking frost protection 2 = Blocking with frost protection 3 = Lockout with frost protection (5)	1	1	1	1	1	1
P36	Analogue output function (0 - 10 V) SCU-S05 PCB	0 = 0-10 V Wilo PCB 1 = 0-10 V Grundfos PCB 2 = PWM pump 3 = Heat output feedback 4 = Temperature feedback	0	0	0	0	0	0
P37	Analogue output function (0 - 10 V) SCU-S05 PCB	1 = OpenTherm control 2 = Analogue control based on temperature (ºC) 3 = Analogue control based on heat output (%)	1	1	1	1	1	1
P38	Average flow temperature factor	Do not change	6	6	6	6	6	6
P39	Display units	0 = ºC/bar 1= F/psi	0	0	0	0	0	0
P40	Service message	0 = Service message off 1 = Service message on 2 = Customised service message	0	0	0	0	0	0
P41	Service operating hours	(x 100) Do not change	175	175	175	175	175	175
P42	Service burning hours	(x 100) Do not change	30	30	30	30	30	30
P43	Setting the pump speed (Minimum pump speed for central heating operation)	2 - 10 (x 10%)	2	2	2	2	2	2
P44	Setting the pump speed (Maximum pump speed for central heating operation)	6 - 10 (x 10%)	10	10	10	10	10	10
P45	ΔT modulate down	10 to 30ºC	25	25	25	25	25	25
Ad	Detection of connected SCUs	0 = No detection 1 = Detection	0	0	0	0	0	0
dF + dU	Factory setting	To restore the factory settings or when replacing the control unit, enter the values dF and dU from the data plate for parameters dF and dU.	X Y	X Y	X Y	X Y	X Y	X Y

(1) Do not adjust
(2) Only with outside sensor (accessory)
(3) If connected
(4) Only if hydraulic pressure sensor connected (accessory)
(5) Pump only

7.1.2 Parameter descriptions Gas 610 ECO PRO

Tab.4 Factory setting

Parameter	Description	Adjustment range	570	710	860	1000	1150	1300
P1	Flow temperature: T_{SET}	20 to 90ºC	80	80	80	80	80	80
P2	Post-circulation of the pump	1 to 98 minutes 99 minutes = continuous	5	5	5	5	5	5

Parameter	Description	Adjustment range	570	710	860	1000	1150	1300
P3	Boiler control	0 = CH off 1 = CH on	1	1	1	1	1	1
P4	Display screen	0 = Simple 1 = Extended 2 = Automatic switching to simple after 3 minutes 3 = Automatic switching to simple after 3 minutes; key lock is active	2	2	2	2	2	2
P5	Brightness of display lighting	0 = Dimmed 1 = Bright	1	1	1	1	1	1
P17	Maximum fan speed (central heating)	G20 (H gas)	52	55	35	38	43	41
P18	Minimum fan speed	G20 (H gas)	19	18	13	12	14	13
P19	Minimum fan speed (offset(1))	G20 (H gas)	0	50	0	50	0	50
P20	Start speed(1)	G20 (H gas)	25	25	14	14	15	16
P21	Maximum flow temperature of system	0 to 90ºC	90	90	90	90	90	90
P22	Heating curve set point (maximum outside temperature)(2)	0 to 30ºC	20	20	20	20	20	20
P23	Heating curve set point (flow temperature)(2)	0 to 90ºC	20	20	20	20	20	20
P24	Heating curve set point (minimum outside temperature)(2)	-30 to 0ºC	–15	–15	–15	–15	–15	–15
P25	Frost protection temperature(2)	-30 to 20ºC	–10	–10	–10	–10	–10	–10
P26	Fault relay **X4** function(3)	0 = Operation signal 1 = Alarm signal	0	0	0	0	0	0
P27	Fault relay **X5** function(3)	0 = Operation signal 1 = Alarm signal	1	1	1	1	1	1
P28	Minimum water pressure Wps(4)	0 - 7 bar (MPa) (x 0.1 bar (Mpa)) 1 = Not connected	0	0	0	0	0	0
P29	Minimum gas pressure switch Gps (accessory)	0 = Not connected 1 = Connected	0	0	0	0	0	0
P30	Hydraulic valve HdV running time(3)	0 to 255 seconds	0	0	0	0	0	0
P31	Flue gas valve FgV running time(3)	0 to 255 seconds	0	0	0	0	0	0
P32	Release waiting time	0 to 255 seconds	0	0	0	0	0	0
P33	Gas leakage control VPS (accessory)	0 = Not connected 1 = Connected	0	0	0	0	0	0
P34	Mains detection phase	0 = Off 1 = On	1	1	1	1	1	1
P35	Blocking input function	1 = Blocking frost protection 2 = Blocking with frost protection 3 = Lockout with frost protection (5)	1	1	1	1	1	1
P36	Analogue output function (0 - 10 V) SCU-S05 PCB	0 = 0-10 V Wilo PCB 1 = 0-10 V Grundfos PCB 2 = PWM pump 3 = Heat output feedback 4 = Temperature feedback	0	0	0	0	0	0
P37	Analogue output function (0 - 10 V) SCU-S05 PCB	1 = OpenTherm control 2 = Analogue control based on temperature (ºC) 3 = Analogue control based on heat output (%)	1	1	1	1	1	1

Parameter	Description	Adjustment range	570	710	860	1000	1150	1300
P38	Average flow temperature factor	Do not change	6	6	6	6	6	6
P39	Display units	0 = ºC/bar 1= F/psi	0	0	0	0	0	0
P40	Service message	0 = Service message off 1 = Service message on 2 = Customised service message	0	0	0	0	0	0
P41	Service operating hours	(x 100) Do not change	175	175	175	175	175	175
P42	Service burning hours	(x 100) Do not change	30	30	30	30	30	30
P43	Setting the pump speed (Minimum pump speed for central heating operation)	2 - 10 (x 10%)	2	2	2	2	2	2
P44	Setting the pump speed (Maximum pump speed for central heating operation)	6 - 10 (x 10%)	10	10	10	10	10	10
P45	ΔT modulate down	10 to 30ºC	25	25	25	25	25	25
Ad	Detection of connected SCUs	0 = No detection 1 = Detection	0	0	0	0	0	0
dF and dU	Factory setting	To restore the factory settings or when replacing the control unit, enter the values dF and dU from the data plate for parameters dF and dU	X Y	X Y	X Y	X Y	X Y	X Y

(1) Do not adjust
(2) Only with outside sensor (accessory)
(3) If connected
(4) Only if hydraulic pressure sensor connected (accessory)
(5) Pump only

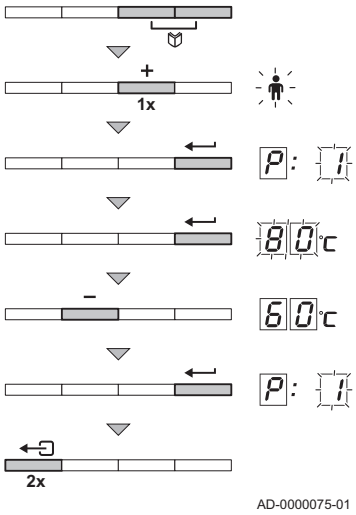
7.2 Changing the parameters

The boiler's control unit is set for the most common central heating systems. These settings will ensure that virtually every central heating system operates effectively. The user or the installer can optimise the parameters as required.

Caution
Changing the factory settings may adversely affect the operation of the boiler.

Note
For the Gas 610 ECO PRO boiler settings: the properties described and the instructions apply to each boiler module. Any change to a parameter to one module therefore needs to be repeated on the other module.

Fig.2 Changing the user parameters



7.2.1 Changing the user-level parameters

The parameters at user level (see parameter table) can be changed by the user as required.

1. Press the two keys at the same time and then the + key until the symbol flashes in the menu bar.
2. Select the user menu using the ⟵ key.
   P:1 appears with flashing 1.
3. Press the ⟵ key again.
   The set value 80°C (for example) appears and flashes.
4. Change the value by pressing the + or − keys. In this example, use the − key to change the value to 60°C.
5. Confirm the value with the ⟵ key.
   P:1 appears with flashing 1.
6. Press the ⟵ key twice to leave this menu and return to the operation display.

Note
The other parameters at user level are changed in the same way as P 1. After step 2, use the + key to go to the required parameter.

■ Setting the key lockout

To prevent unwanted changes to the settings by unauthorised persons, menu keys on the control panel can be blocked. At the user level, key lockout can be activated using parameter P4.

Do this as follows:

1. Press the two keys at the same time and then the + key until the symbol flashes in the menu bar.
2. Select the user menu using the ⟵ key.
   P 1 appears with flashing 1.
3. Press the + key until P4 appears.
4. Confirm the selection with the ⟵ key.
   The current setting 2 flashes in the display.
5. Change the value from 2 to 3 by pressing the + key.
6. Confirm the value with the ⟵ key.
7. Press the ⟵ key twice to leave this menu and return to the operation display.
   Key lockout is active. If no key is pressed for 3 minutes, the display lighting switches off and only the current water pressure, the ⟵ key and the 🔑 symbol are displayed (the water pressure is only displayed if a hydraulic pressure sensor is connected).
8. Press the ⟵ key for approximately 2 seconds to temporarily reactivate the display and the other keys.
   The 🔑 symbol disappears from the display.

■ Set brightness display

The brightness of the display lighting can be changed at the user level using parameter P5.

Do this as follows:

1. Press the two keys at the same time and then the + key until the symbol flashes in the menu bar.
2. Select the user menu using the ⟵ key.
   P 1 appears with flashing 1.
3. Press the + key until P5 appears.
4. Confirm the selection with the ⟵ key.
   The current setting 1 flashes in the display.
5. Change the value from 1 to 0 by pressing the − key.
6. Confirm the value with the ⟵ key.
7. Press the ⟵ key twice to leave this menu and return to the operation display.

Fig.3 Changing installer parameters

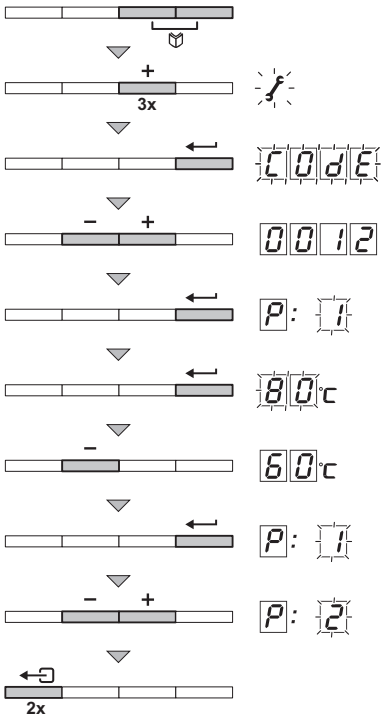


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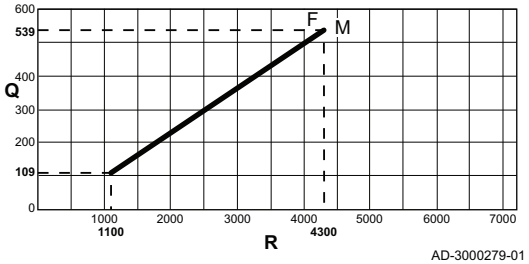
Fig.4 Load of Gas 310 ECO PRO-575



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7.2.2 Changing parameters at installer level

Parameters at installer level (see table of parameters) may be modified only by a recognised installer. To prevent unwanted modifications to settings, some parameters can only be changed after the special access code 0012 is entered.

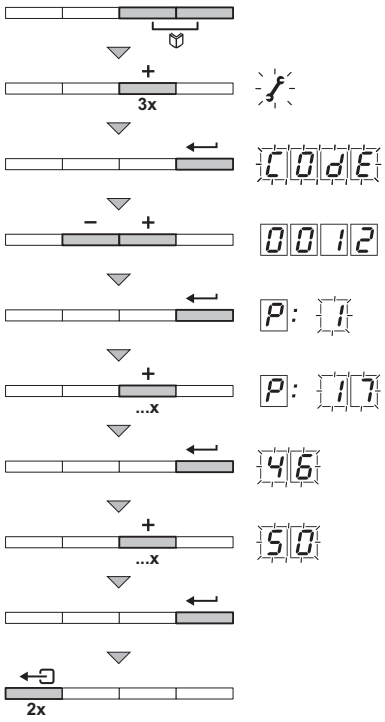
1. Press the two menu keys at the same time and then press the + key until the symbol flashes in the menu bar.
2. Select the installer menu using the ⟵ key.
   CODE appears on the display.
3. Using the + or − keys, set the installer code 0012.
4. To confirm, press the ⟵ key.
   P 1 appears with a flashing 1.
5. Press the ⟵ key again.
   The value 80°C (for example) appears and flashes.
6. Change the value by pressing the + or − keys. In this example, press the − key to set the value to 60°C.
7. Press the ⟵ key to confirm the value.
   P 1 appears with a flashing 1.
8. Set any other parameters by selecting them using the + or − keys.
9. Press the ⟵ key twice to leave this menu and return to the operation display.

Note
The boiler also returns to operating status if no keys are pressed for 3 minutes.

■ Setting the maximum load for CH operation

M Maximum heat input
F Factory setting
Q Input (Hi) (kW)
R Fan speed (rpm)

Fig.5 Modifying P 17



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The speed can be changed using parameter P 17. A linear relationship exists between the speed and the input (see figure). A graph for the other boilers can be produced in the same way.

1. Press the two menu keys at the same time and then press the + key until the symbol flashes in the menu bar.
2. Select the installer menu using the ⟵ key.
   CodE appears on the display.
3. Using the + or − keys, set the installer code 0012.
4. To confirm, press the ⟵ key.
   P 1 appears with a flashing 1.
5. Press the + key to go to parameter P 17.
6. To confirm, press the ⟵ key.
7. Press the + key to increase the speed, for example from 46 to 50.
8. To confirm, press the ⟵ key.
9. Press the ⟵ key twice to leave this menu and return to the operation display.

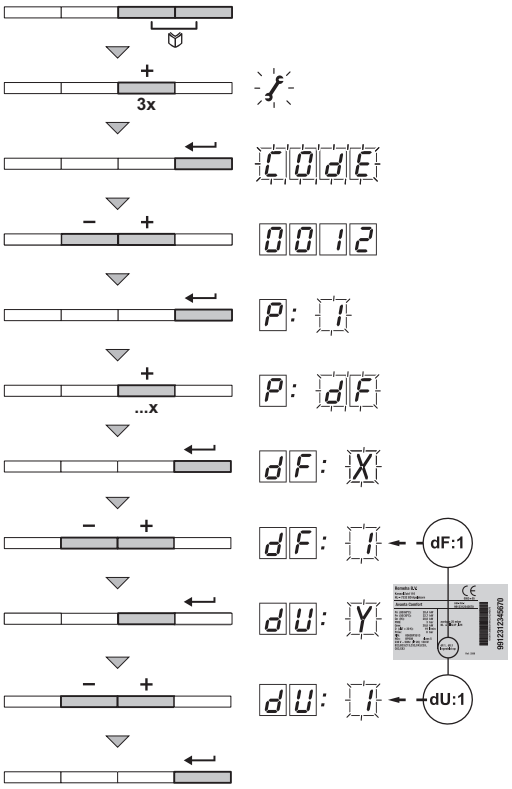
■ Factory settings

Caution
By restoring the factory settings, customized settings can also be erased. So first write down all the customized parameters (e.g. settings for attached accessories such as a flue damper or gas leak control). Adjust these specific settings again after the factory settings have been restored.

– Return to the factory settings

1. Press the two keys at the same time and then press the + key until the symbol flashes in the menu bar.
2. Select the installer menu using the ⟵ key.
   CODE appears on the display.
3. Use the + or − keys to set the installer code 0012.
4. To confirm, press the ⟵ key.
   P:1 appears with a flashing 1.
5. Press the + key several times until P:dF appears on the display with a flashing d.F
6. To confirm, press the ⟵ key.
   dF appears with a flashing X. This is the current value of X for dF. Check this against the value of X on the type plate.
7. Enter the value of X shown on the type plate using the + or − keys.
8. To confirm, press the ⟵ key.
   dF:Y appears with a flashing Y. This is the current value of Y for dU. Check this against the value of Y on the type plate.
9. Enter the value of Y shown on the type plate using the + or − keys.
10. To confirm, press the ⟵ key.
    The factory settings are reset.
11. The display returns to the current operating mode.

Fig.6 Resetting factory settings



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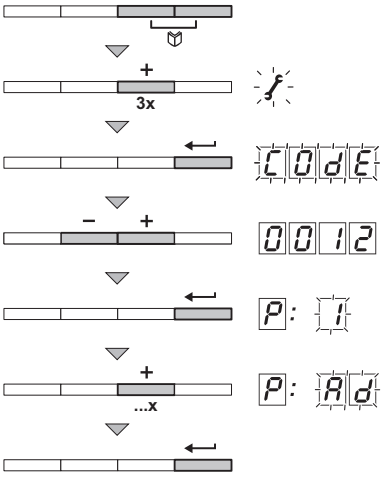
■ Carrying out an auto-detect

After removing a PCB, an auto-detect must be carried out. Proceed as follows:

1. Press the two keys at the same time and then press the + key until the symbol flashes in the menu bar.
2. Select the installer menu using the ⟵ key.
   CODE appears on the display.
3. Use the + or − keys to set the installer code 0012.
4. To confirm, press the ⟵ key.
   P:1 appears with a flashing 1.
5. Press the + key several times until P:Ad appears on the display with a flashing A.d
6. To confirm, press the ⟵ key.
   Auto-detect is carried out.
7. The display returns to the current operating mode.

Fig.7 Carrying out an auto-detect



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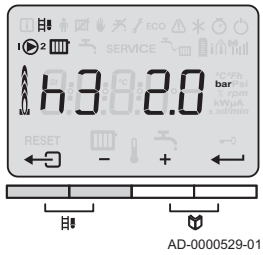
■ Setting the chimney sweeping position

In the chimney sweeping position, the boiler can be set to forced full load or forced part load mode, for example to control combustion (O_2/CO_2).

– Setting the forced full load

Fig.8 Setting to full load

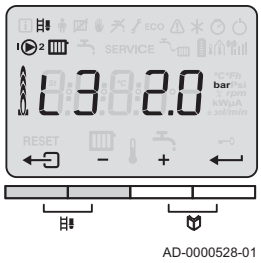


Set the forced full load:

1. Press the two keys at the same time. h3 and the symbol appear in the display.
   Full load is set.
2. Press the key to leave this menu and return to the operation display.

– Setting the forced part load

Fig.9 Setting to part load

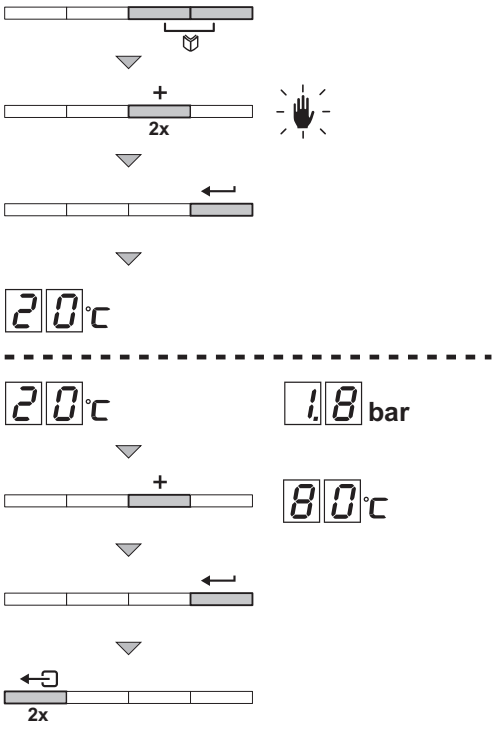


Set the forced part load:

1. Press the two keys at the same time. h3 and the symbol appear in the display.
2. Press the key several times until L3 appears on the display.
   The part load mode is parameterised.
3. Press the key to leave this menu and return to the operation display.

■ Setting the manual mode

Fig.10 Setting manual mode



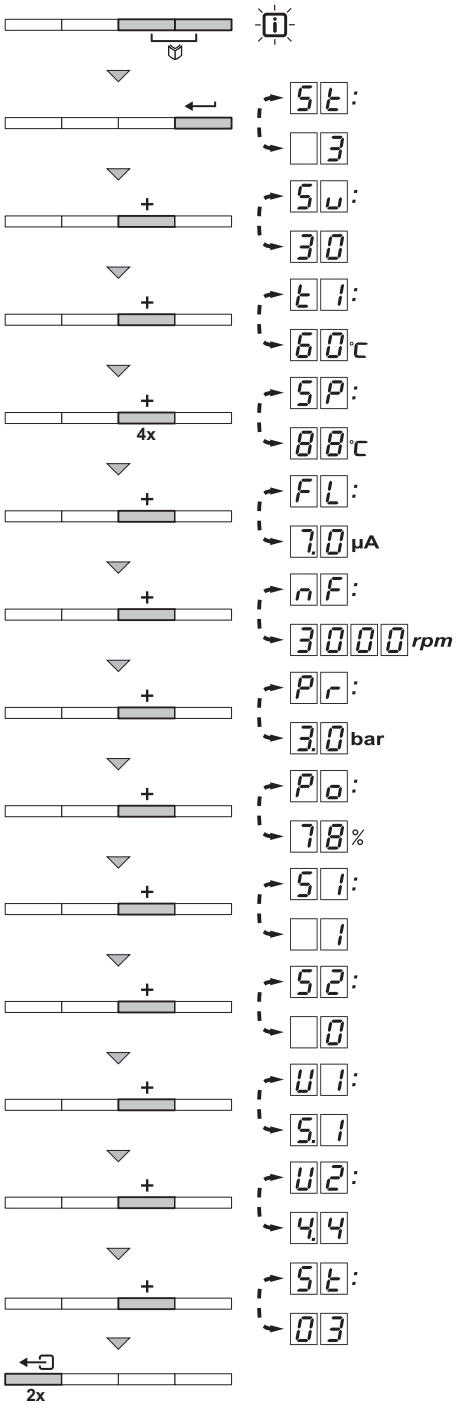
In some cases, it may be necessary to set the boiler to manual mode, for example when the controller has not yet been connected. The boiler can be set to automatic or manual mode via the symbol. Proceed as follows:

1. Press the two menu keys at the same time and then press the key until the symbol flashes in the menu bar.
2. Press the key; the display will show:
   either the minimum flow temperature value
   or the value of the minimum flow temperature and the current water pressure (only if a hydraulic pressure sensor is connected).
3. Press the or keys to temporarily change this value in manual mode.
4. To confirm, press the key.
   The boiler is now set to manual mode.
5. Press the key twice to leave this menu and return to the operation display.

7.3 Displaying the measured values

The control unit continually registers various values from the boiler and the connected sensors. These values can be read on the control panel of the boiler.

Fig.11 Reading the current values



Note
For operation of the Gas 610 ECO PRO boiler: the properties described and the instructions apply to each boiler module.

7.3.1 Reading the various current values

The following current values can be read in the information menu ⓘ:

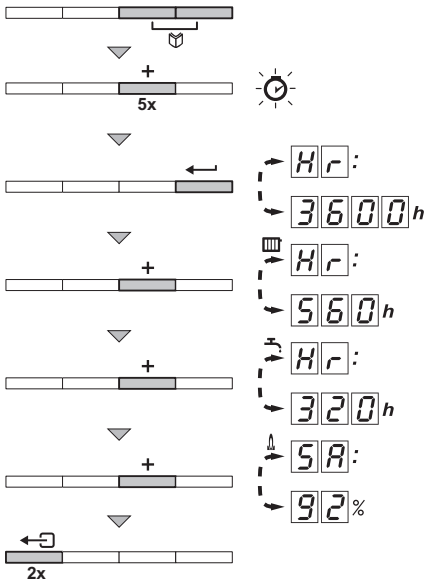
- ST = Status.
- Su = Sub-status.
- T1 = Flow temperature (°C).
- T2 = Return temperature (°C).
- T3 = Boiler temperature (°C).
- T4 = Outside temperature (°C). Only if an outside temperature sensor is connected (accessory).
- T6 = Heat exchanger temperature (°C).
- SP = Internal set point (°C).
- FL = Ionisation current (µA).
- nF = Fan speed (rpm).
- PR = Water pressure (bar). Only if a hydraulic pressure sensor is connected (accessory).
- Po = Supplied relative heat output (%).
- S1 = Status of **Gps** minimum gas pressure switch: -- = not connected/ 1 = gas pressure OK/ 2 = gas pressure incorrect. Only if **Gps** connected (accessory).
- S2 = Status of **VPS** gas leakage control: -- = not connected/ 1 = no gas leak/ 2 = gas leak detected. Only if **VPS** connected (accessory).
- U1 = analogue input (V).
- U2 = analogue output (V).

The current values can be read as follows:

1. Press the two ⋔ keys at the same time.
   The ⓘ symbol flashes.
2. Confirm by pressing the ⟵ key.
   The screen alternates between the parameter ST and the current status, e.g. 3.
3. Press the ✚ key.
   The screen alternates between the parameter Su and the current sub-status, e.g. 30.
4. Press the ✚ key.
   The screen alternates between the parameter T1 and the current flow temperature, e.g. 60 °C.
5. Press the ✚ key several times consecutively to scroll through the various parameters.
   At a certain point, the readout cycle starts again with the ST parameter.
6. Press the ⟵ key twice to exit this menu and return to the operation display.

7.3.2 Reading out the hour counter and percentage of successful starts

Fig.12 Reading out the hour counter



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1. Press the two keys at the same time and then press the key until the symbol flashes in the menu bar.
2. Press the key.
   The display alternates between HA and the number of boiler operating hours, for example 3600.
3. Press the key; the display shows .
   The display alternates between HA and the number of burning hours for CH operation, for example 560.
4. Press the key; the display shows .
   The display alternates between SA and the percentage of successful starts, for example 92 %.
5. Press the key twice to leave this menu and return to the operation display.

7.3.3 Status and sub-status

The information menu gives the following status and sub-status numbers:

Tab.5 Status and sub-status numbers

Status ST		Sub-status Su	
0	Stand-by mode	0	Stand-by mode
1	Boiler start (heat demand)	1	Anti-swing
		2	Open hydraulic valve
		3	Start pump
		4	Wait for the correct temperature before burner start
2	Burner start	10	Open external gas valve
		11	Fan on
		12	Open flue damper
		13	Pre-ventilation
		14	Wait for release signal
		15	Burner on
		16	Gas leakage control VPS
		17	Pre-ignition
		18	Main ignition
		19	Flame detection
		20	Intermediate ventilation

Status ST		Sub-status Su	
3	Burning on CH operation	30	Temperature control
		31	Limited temperature control (ΔT protection)
		32	Capacity control
		33	Temperature gradient protection level 1 (modulate down)
		34	Temperature gradient protection level 2 (part load)
		35	Temperature gradient protection level 3 (blocking)
		36	Modulate up for flame control
		37	Temperature stabilisation time
		38	Cold start
5	Burner stop	40	Burner off
		41	Post ventilation
		42	Fan off
		43	Close flue damper
		44	Stop fan
		45	Close the external gas valve
6	Boiler stop (end of heat demand)	60	Pump post circulation
		61	Pump off
		62	Close hydraulic valve
		63	Start anti-swing
8	Control stop	0	Wait for burner start
		1	Anti-swing
9	Blocking	xx	Blocking code xx

8 Troubleshooting

8.1 Error codes

Note
Operating the Gas 610 ECO PRO boiler: the properties described and the instructions apply to each boiler module.

The boiler is fitted with an electronic regulation and control unit. The heart of the control is a microprocessor, the **Comfort Master©**, which both protects and controls the boiler. In the event of an error, a corresponding code is displayed.

The meaning of the error codes can be found in the error table.

Note
Note the error code displayed. The error code is needed to find the cause of the error quickly and correctly and for any support from Remeha.

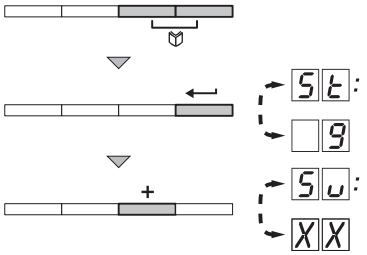
8.1.1 Blocking

A (temporary) blocking mode is a boiler status, resulting from an abnormal state. The display shows a blocking code (for example ST:9). The control unit makes a number of attempts to start the boiler again. The blocking codes can be read out as follows:

1. Press the two keys at the same time.
2. Confirm by pressing key ⟵.
   The display alternates between ST: and the blocking code 9.
3. Press the + key.
   Su appears on the display.

Note
The boiler automatically returns to operation once the cause of the blocking has been removed.

Fig.13 Blocking code



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Tab.6 Blocking codes

Blocking code	Description
Su:0	Parameter error: • Reset dF and dU • Restoring parameters
Su:1	Maximum flow temperature exceeded: • No flow or insufficient flow: - Check the circulation (direction, pump, valves) - Reasons for the heat demand
Su:3	Maximum heat exchanger temperature increase has been exceeded: • No flow or insufficient flow: - Check the circulation (direction, pump, valves) - Check the water pressure - Check the cleanliness of the heat exchanger • Sensor error: - Check that the sensors are operating correctly - Check that the sensor has been fitted properly
Su:4	The maximum rate of increase in the flow temperature tolerated in the exchanger has been exceeded: • No flow or insufficient flow: - Check the circulation (direction, pump, valves) - Reasons for the heat demand

Blocking code	Description
SU:5 SU:6	Maximum difference between the flow and return temperature exceeded: • No flow or insufficient flow: - Check the circulation (direction, pump, valves) - Check the water pressure - Check the cleanliness of the heat exchanger • Sensor error: - Check that the sensors are operating correctly - Check that the sensor has been fitted properly
SU:8	No release signal: • External cause: remove external cause • Parameter error: check parameters • Bad connection: check the wiring
SU:9	Phase and neutral of mains supply mixed up: • The mains connection is wired incorrectly: invert phase and neutral • Floating network or 2-phase network: set parameter P34 to 0
SU:10	Blocking input is active: • External cause: remove external cause • Parameter error: check parameters • Bad connection: check the wiring
SU:11	Blocking input active or frost protection active: • External cause: remove external cause • Parameter error: check parameters • Bad connection: check the wiring
SU:13	Communication error with the SCU PCB: • Bad connection with BUS: check the wiring • SCU PCB not present in connection box: perform automatic detection
SU:14	Water pressure is too low: • The water pressure is too low: - Check the water pressure - Fill the boiler and the system with water - Check the hydraulic pressure sensor setting • Incorrect setting of the water pressure parameter P28: Check water pressure parameter setting P28 • Water leakage
SU:15	Gas pressure too low: • No flow or insufficient flow: - Check that the gas valve is fully opened - Check the gas supply pressure • Incorrect setting on Gps gas pressure switch on SCU PCB: - Check whether the Gps has been correctly fitted - Replace the Gps switch if necessary
SU:16 (1)	Configuration error or SU PCB not recognised: • Wrong SU PCB for this boiler: replace SU PCB
SU:17 (1)	Configuration error or default parameter table incorrect: • Parameter error in the PCU PCB: replace PCU PCB
SU:18 (1)	Configuration error or PCU PCB not recognised: • Wrong PCU PCB for this boiler: replace PCU PCB
SU:19 (1)	Configuration error or parameters dF and dU unknown • Parameter error: Reset dF and dU
SU:20 (1)	Configuration procedure active: • Active for a short time after switching on the boiler: no action
SU:21	Communication error with the SU PCB • Poor connection: Check whether the PCU PCB has been correctly fitted in the connector on the SU PCB

Blocking code	Description
S.:22	No flame during operation: • No ionisation current: - Vent the gas supply to remove air - Check that the gas valve is fully opened - Check the gas supply pressure - Check the operation and setting of the gas valve unit - Check that the air supply inlet and flue gas outlet are not blocked - Check that there is no recirculation of flue gases
S.:24	Gas leakage control fault: • Bad connection: check the wiring • Gas valve unit faulty: replace the gas valve unit • VPS gas leakage control defective: replace VPS gas leakage control
S.:25	Internal error in SU PCB: • Replace SU PCB
(1) These blocks are not stored in the error memory	

8.1.2 Lock out

If the blocking conditions still exist after various start attempts, the boiler goes into lockout (also called error). The boiler will also lock out if an error is signalled anywhere in the boiler. An error code will appear on the display. The error code is displayed as follows:

In a red flashing display:
- the symbol ⚠
- the symbol **RESET**
- the error code, for example E:01

The meaning of the error codes can be found in the error table. Note the error code.

Note
The error code is needed to find the cause of the error quickly and correctly and for any support from Remeha.

Press the **RESET** key for two seconds. If the error code continues to display, search for the cause in the error table and apply the solution.

Note
If the display does not show **RESET** but rather ⏻, the boiler must be switched off and then switched on again 10 seconds later before the error can be reset.

Tab.7 Error codes

Error code	Description
E:00	Parameter storage unit PSU not found: • Bad connection: check the wiring
E:01	Safety parameters not OK: • Bad connection: check the wiring • Faulty PSU: replace PSU
E:02	Flow temperature sensor short circuited: • Bad connection: check the wiring • Sensor not connected or incorrectly connected: - Check that the sensor has been fitted properly - Check that the sensors are operating correctly • Faulty sensor: replace the sensor if necessary
E:03	Flow temperature sensor open: • Bad connection: check the wiring • Sensor not connected or incorrectly connected: - Check that the sensor has been fitted properly - Check that the sensors are operating correctly • Faulty sensor: replace the sensor if necessary

Error code	Description
E:04	Temperature of heat exchanger too low: • Bad connection: check the wiring • Sensor not connected or incorrectly connected: - Check that the sensors are operating correctly - Check that the sensor has been fitted properly • Faulty sensor: replace the sensor if necessary • No circulation: - Vent the air from the CH system - Check the circulation (direction, pump, valves) - Check the water pressure - Check the cleanliness of the heat exchanger - If present: check the boiler type parameter setting
E:05	Temperature of heat exchanger too high: • Bad connection: check the wiring • Sensor not connected or incorrectly connected: - Check that the sensors are operating correctly - Check that the sensor has been fitted properly • Faulty sensor: replace the sensor if necessary • No circulation: - Vent the air from the CH system - Check the circulation (direction, pump, valves) - Check the water pressure - Check the cleanliness of the heat exchanger - If present: check the boiler type parameter setting
E:06	Return temperature sensor short-circuited: • Bad connection: check the wiring • Sensor not connected or incorrectly connected: - Check that the sensors are operating correctly - Check that the sensor has been fitted properly • Faulty sensor: replace the sensor if necessary
E:07	Open circuit in return temperature sensor: • Bad connection: check the wiring • Sensor not connected or incorrectly connected: - Check that the sensors are operating correctly - Check that the sensor has been fitted properly • Faulty sensor: replace the sensor if necessary
E:08	Return temperature too low: • Bad connection: check the wiring • Faulty sensor: replace the sensor if necessary • Sensor not connected or incorrectly connected: - Check that the sensors are operating correctly - Check that the sensor has been fitted properly • No circulation: - Vent the air from the CH system - Check the circulation (direction, pump, valves) - Check the water pressure - Check the cleanliness of the heat exchanger - If present: check the boiler type parameter setting
E:09	Return temperature too high: • Bad connection: check the wiring • Faulty sensor: replace the sensor if necessary • Sensor not connected or incorrectly connected: - Check that the sensors are operating correctly - Check that the sensor has been fitted properly • No circulation: - Vent the air from the CH system - Check the circulation (direction, pump, valves) - Check the water pressure - Check the cleanliness of the heat exchanger - If present: check the boiler type parameter setting

Error code	Description
E:10 E:11	Difference between the flow and return temperatures too great: • No circulation: - Vent the air from the CH system - Check the circulation (direction, pump, valves) - Check the water pressure - Check the cleanliness of the heat exchanger - Check that the heating pump is operating correctly - If present: check the boiler type parameter setting • Sensor not connected or incorrectly connected: - Check that the sensors are operating correctly - Check that the sensor has been fitted properly • Faulty sensor: replace the sensor if necessary
E:12	• Temperature of heat exchanger above normal range (STB high-limit thermostat): - Bad connection: check the wiring - Sensor not connected or incorrectly connected: • Check that the sensors are operating correctly • Check that the sensor has been fitted properly - Faulty sensor: replace the sensor if necessary - No circulation: • Vent the air from the CH system • Check the circulation (direction, pump, valves) • Check the water pressure • Check the cleanliness of the heat exchanger • If present: check the boiler type parameter setting • If present: Air pressure differential switch has been triggered: - Air supply or flue gas outlet blocked: check air supply and flue gas outlet for blockage
E:14	Five failed burner starts: • No ignition spark: - Check cabling of ignition transformer - Check the ionisation/ignition electrode - Check breakdown to earth - Check the condition of the burner cover - Check the earthing - Defective control SU PCB • Ignition spark but no flame: - Vent the gas supply to remove air - Check that the gas valve is fully opened - Check the gas supply pressure - Check the operation and setting of the gas valve unit - Check that the air supply inlet and flue gas outlet are not blocked - Check the wiring on the gas valve unit - Defective control SU PCB • Flame present, but ionisation has failed or is inadequate: - Check that the gas valve is fully opened - Check the gas supply pressure - Check the ionisation/ignition electrode - Check the earthing - Check the wiring on the ionisation/ignition electrode
E:15	If VPS switch is present: 5 failed gas leakage checks: • Gas pressure non-existent or too low: - check whether the gas tap is properly open - check the gas supply pressure • Wiring fault: check the wiring • Incorrect setting of the VPS switch: check whether the VPS switch is set properly • VPS pressure switch not installed or poorly installed: check that the VPS switch is properly installed • Faulty VPS switch: replace VPS switch if necessary • Faulty gas valve: check the gas valve and replace it if necessary
E:16	False flame signal: • Ionisation current measured but no flame should be present: check the ionisation and ignition electrode • Ignition transformer faulty: replace the ignition transformer if necessary • Faulty gas valve: check the gas valve and replace it if necessary • The burner remains very hot: O_2/CO_2 too high: adjust O_2/CO_2 a

Error code	Description
E:17	Gas valve error in SU PCB: • Bad connection: check the wiring • Defective SU PCB: check the SU PCB and replace if necessary
E:34	Fan operation error: • Bad connection: check the wiring • Fan defective: - Check for adequate draw on the chimney connection - Replace the fan if necessary
E:35	Flow and return reversed: • Bad connection • Sensor not connected or incorrectly connected: - Check that the sensors are operating correctly - Check that the sensor has been fitted properly • Sensor failure: Replace the sensor if necessary • Water circulation in wrong direction: check the circulation (direction, pump, valves)
E:36	5x flame loss: • No ionisation current: - Vent the gas supply to remove air - Check that the gas valve is fully opened - Check the gas supply pressure - Check the operation and setting of the gas valve unit - Check that the air supply inlet and flue gas outlet are not blocked - Check that there is no recirculation of flue gases
E:37	Error in communication with SU PCB: • Bad connection: check whether the SU PCB has been correctly fitted in the connector on the PCU PCB
E:38	Communication error with the SCU PCB: • Bad connection: check the wiring • Faulty SCU PCB: replace SCU PCB
E:39	Blocking input in locked-out mode: • Bad connection: check the wiring • External cause: remove external cause • Wrong parameter set: check the parameters
E:40	If present: Heat recovery unit test fault: • Bad connection: check the wiring • External cause: remove external cause • Wrong parameter set: check the parameters

8.2 Error memory

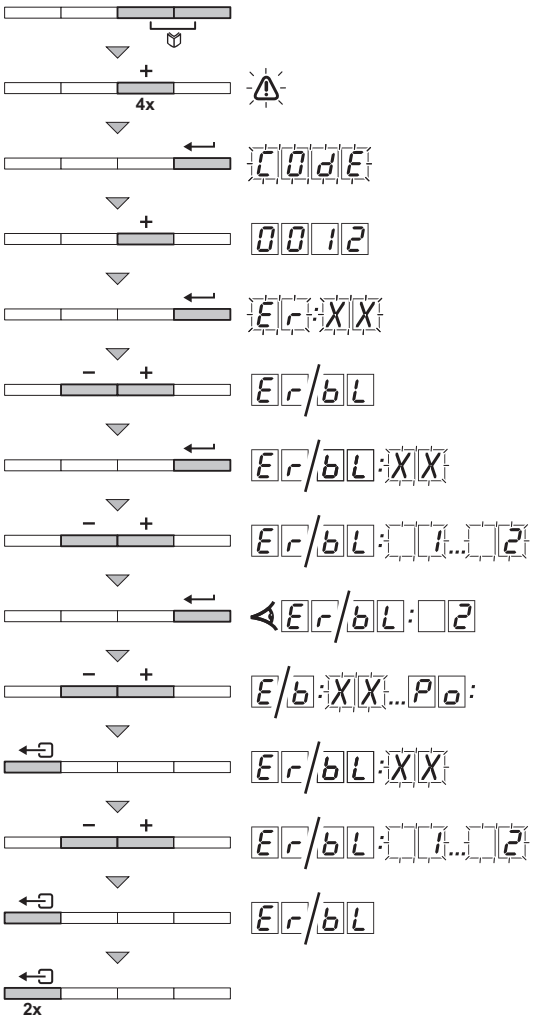
The boiler control unit has an error memory. It stores the last 16 errors that have occurred.

In addition to the error codes, the following data is also saved:

- Number of times that the error occurred: (n:XX).
- Boiler operating mode (ST:XX).
- The flow temperature (T1:XX) and the return temperature (T2:XX) when the error occurred.

To view the error memory, you must first enter the access code 0012.

Fig.14 Reading out the error memory

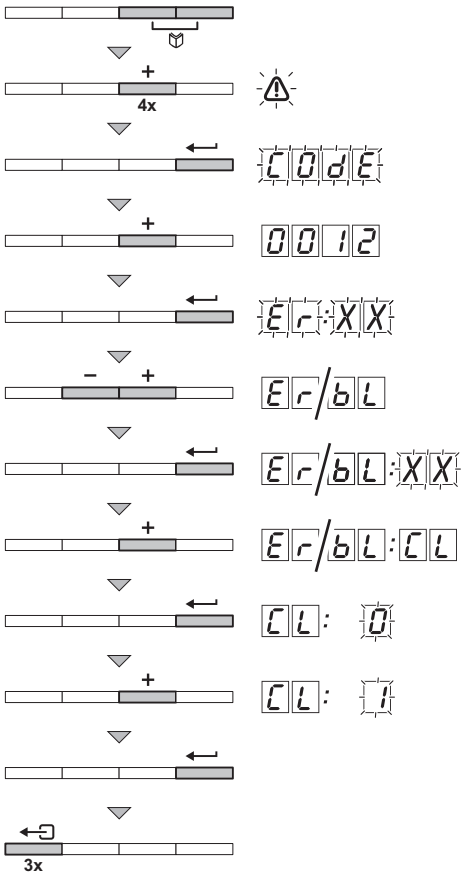


8.2.1 Reading out the error memory

1. Press the two menu keys at the same time and then press the + key until the ⚠ symbol flashes in the menu bar.
2. Select the installer menu using the ⟵ key.
   CODE appears on the display.
3. Using the + or − keys, set the installer code 0012.
4. To confirm, press the ⟵ key.
   ER:XX appears on the display.
5. The error list or blocking list can be displayed by pressing the + or − key.
6. Confirm by pressing the ⟵ key.
   ER:XX appears with a flashing XX = last error that occurred, e.g. .2
7. Use the + or − keys to scroll through the errors or blocks.
8. Press the ⟵ key to display the details of the errors or blocks.
9. Press the + or − keys to view the following data:
   - n:1 = Number of times that the error occurred.
   - HR = Number of operating hours.
   - ST = Status.
   - Su = Sub-status.
   - T1 = Flow temperature (°C).
   - T2 = Return temperature (°C).
   - T3 = Boiler temperature (°C).
     Only if an outside temperature sensor is connected (accessory)
   - T4 = Outside temperature (°C).
   - T6 = Heat exchanger temperature (°C).
   - SP = Internal set point (°C).
   - FL = Ionisation current (µA).
   - nF = Fan speed (rpm).
   - PR = Water pressure (bar).
     Only if an outside hydraulic pressure sensor is connected (accessory)
   - Po = Supplied relative heat output (%).
10. Press the ⟵ key to interrupt the display cycle.
    ER:XX appears with a flashing XX = last error that occurred.
11. Use the + or − keys to scroll through the errors or blocks.
12. Press the ⟵ key to show the error list or blocking list.
13. Press the key ⟵ twice to exit the error menu.

8.2.2 Clearing error memory

Fig.15 Clearing error memory



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1. Press the two keys at the same time and then press the ⊕ key until the symbol flashes in the menu bar.⚠
2. Select the installer menu using the ⟵ key.
   CodE appears on the display.
3. Use the ⊕ or ⊖ keys to set the installer code 001.2
4. To confirm, press the ⟵ key.
   ER:XX appears on the display.
5. The error list or blocking list can be displayed by pressing the ⊕ or ⊖ key.
6. Confirm by pressing the ⟵ key.
   ER:XX appears with a flashing XX.
7. Press the ⊕ key several times until ER:CL appears on the display.
8. Press the ⟵ key.
   CL:0 appears with a flashing 0.
9. Press the ⊕ key to adjust the setting to 1.
10. Press the ⟵ key to delete the errors from the error memory.
11. Press the key ⟵ three times to exit the error memory.

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Remeha Commercial UK
Innovations House
3 Oaklands Business Centre
Oaklands Park
RG41 2FD Wokingham
Tel: +44 (0)118 978 3434
Fax: +44 (0)118 978 6977
Internet: www.remeha.co.uk
E-mail: boilers@remeha.co.uk

SP OpenTherm®

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